

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A composition of matter comprising particles which contain choline chloride to be administered in a rumen-protected and post-rationally effective form, each particle comprising a core which contains choline chloride and a protective coating surrounding the core and protecting choline chloride by ruminal activity while allowing its release into the post-rumen portion of the digestive tract of a ruminant, wherein the core mainly consists of choline chloride in the form of a dry, crystalline powder and, in combination, the protective coating surrounding the core comprises an outer, continuous layer mainly consisting of carnauba wax and an inner, continuous layer consisting of a hydrophobic substance or more lipids selected from: vegetable oils, hydrogenated vegetable oils, and mixtures thereof.

2. (Original) A composition of matter as claimed in claim 1, wherein the dry, crystalline powder of choline chloride is composed by micronized crystals having a predetermined distribution of particle size.

3. (Original) A composition of matter as claimed in claim 2, wherein the average particle size of the micronized crystals ranges from 100 micrometers to 300 micrometers.

4. (Original) A composition of matter as claimed in claim 2, wherein the average particle size of the micronized crystals is 200 micrometers.

5. (Original) A composition of matter as claimed in claim 1, wherein the amount of dry, crystalline powder of choline chloride in the core ranges from 80% to 95% by weight of the core.

6. (Original) A composition of matter as claimed in claim 1, wherein the amount of dry, crystalline powder of choline chloride in the core ranges from 85% to 90% by weight of the core.

7. (Original) A composition of matter as claimed in claim 1, wherein the core comprises a predetermined amount of additional substances.

8. (Original) A composition of matter as claimed in claim 7, wherein the additional substances comprise a flow modifier.
9. (Original) A composition of matter as claimed in claim 8, wherein the flow modifier comprises one or more compounds chosen in the family of silicates.
10. (Original) A composition of matter as claimed in claim 9, wherein the flow modifier comprises one or more compounds chosen in the group of aluminosilicates.
11. (Original) A composition of matter as claimed in claim 8, wherein the flow modifier comprises one or more compounds chosen in the group consisting of zeolites, silica, perlite.
12. (Original) A composition of matter as claimed in claim 8, wherein the amount of flow modifier in the core ranges from 3% to 8% by weight of the core.
13. (Original) A composition of matter as claimed in claim 8, wherein the amount of flow modifier in the core is equal to 3% by weight of the core.
14. (Original) A composition of matter as claimed in claim 8, wherein the amount of flow modifier in the core is equal to 8% by weight of the core.
15. (Original) A composition of matter as claimed in claim 7, wherein the additional substances comprise a predetermined amount of a binder acting as a moisture barrier.
16. (Original) A composition of matter as claimed in claim 15, wherein the binder acting as a moisture barrier comprises one or more compounds chosen in the family of stearates.
17. (Original) A composition of matter as claimed in claim 16, wherein the binder acting as a moisture barrier comprises one or more compounds chosen among zinc stearate, magnesium stearate and calcium stearate.

18. (Original) A composition of matter as claimed in claim 15, wherein the amount of binder acting as a moisture barrier in the core is equal to 7% by weight of the core.

19. (Original) A composition of matter as claimed in claim 7, wherein the additional substances comprise a flow modifier and a predetermined amount of a binder acting as a moisture barrier.

20. (Original) A composition of matter as claimed in claim 19, wherein: the core contains 90% by its weight of dry crystalline choline chloride in the form of micronized crystals, the remaining 10% by weight of the core being composed by a flow modifier consisting of silica in an amount of 3% by weight of the core and by a binder acting as a moisture barrier consisting of calcium stearate in an amount of 7% by weight; the core represents 39.0% by weight of the final particle; the whole protective coating represents 61.0% by weight of the final particle; the inner, continuous layer is composed solely by hydrogenated soybean oil as hydrophobic substance; the outer, continuous layer is completely composed by carnauba wax; the inner layer represents 60% by weight of the protective coating material and the 36.6% by weight of the final particle; the outer layer represents 40% by weight of the protective coating material, and 24.4% by weight of the final particle; the final particle having a particle size ranging from 400 micrometers to 1200 micrometers.

21. (Original) A composition of matter as claimed in claim 19, wherein: the core contains 90% by its weight of dry crystalline choline chloride in the form of micronized crystals, the remaining 10% by weight of the core being composed by a flow modifier consisting of silica in an amount of 3% by weight of the core and by a binder acting as a moisture barrier consisting of calcium stearate in an amount of 7% by weight of the core; the core represents 44.2% by weight of the final particle; the whole protective coating represents 55.8% by weight of the final particle; the inner, continuous layer is composed solely by hydrogenated soybean oil as hydrophobic substance; the outer, continuous layer is composed solely by carnauba wax; the inner layer represents 55% by weight of the protective coating and the 30.7% by weight of the final particle; the outer layer represents 45% by weight of the protective coating, and 25.1% by weight of the final particle; the final particle in the composition of matter having a particle size ranging from 200 micrometers to 1000 micrometers.

22. (Original) A composition of matter as claimed in claim 7, wherein the amount of additional substances in the core is lower than or at most equal to 20% by weight of the core.

23. (Original) A composition of matter as claimed in claim 7, wherein the amount of additional substances in the core is equal to 15% by weight of the core.

24. (Original) A composition of matter as claimed in claim 7, wherein the amount of additional substances in the core ranges from 1% to 10% by weight of the core.

25. (Original) A composition of matter as claimed in claim 7, wherein the amount of additional substances in the core ranges from 2% to 8% by weight of the core.

26. (Original) A composition of matter as claimed in claim 7, wherein the amount of additional substances in the core is 7% by weight of the core.

27. (Original) A composition of matter as claimed in claim 1, wherein the core has a weight ranging from 30% to 70% by weight of the whole particle.

28. (Original) A composition of matter as claimed in claim 1, wherein the core has a weight ranging from 40% to 50% by weight of the whole particle.

29. (Original) A composition of matter as claimed in claim 1, wherein the amount of carnauba wax in the outer layer ranges from 80% to 100% by weight of the outer layer itself.

30. (Original) A composition of matter as claimed in claim 1, wherein the amount of carnauba wax in the outer layer ranges from 90% to 95% by weight of the outer layer itself.

31. (Currently amended) A ~~composition~~ composition of matter as claimed in claim 1, wherein the outer layer further comprises a predetermined amount of a rigidity controlling agent mixed with carnauba wax to control the rigidity of the outer layer.

32. (Original) A composition of matter as claimed in claim 31, wherein the predetermined amount of the rigidity controlling agent is lower than or at most equal to 20% by weight of the outer layer.
33. (Original) A composition of matter as claimed in claim 31, wherein the predetermined amount of the rigidity controlling agent ranges from 5% to 10% by weight of the outer layer.
34. (Original) A composition of matter as claimed in claim 31, wherein the rigidity controlling agent is a plasticizer.
35. (Original) A composition of matter as claimed in claim 31, wherein the rigidity controlling agent comprises one or more lipids.
36. (Original) A composition of matter as claimed in claim 35 wherein the one or more lipids are selected from the family of vegetable oils.
37. (Original) A composition of matter as claimed in claim 35 wherein the one or more lipids are selected from the group consisting of palm oil and soybean oil.
38. (Original) A composition of matter as claimed in claim 35 wherein at least one of the one or more lipids is a hydrogenated vegetable oil.
39. (Original) A composition of matter as claimed in claim 31, wherein the core comprises a predetermined amount of additional substances.
40. (Original) A composition of matter as claimed in claim 39, wherein the additional substances comprise a flow modifier.
41. (Original) A composition of matter as claimed in claim 39, wherein the additional substances comprise a predetermined amount of a binder acting as a moisture barrier.
42. (Original) A composition of matter as claimed in claim 39, wherein the additional substances comprise a flow modifier and a predetermined amount of a binder acting as a moisture barrier.

43. (Original) A composition of matter as claimed in claim 42, wherein: the core contains 90% by its weight of dry crystalline choline chloride in the form of micronized crystals, the remaining 10% by weight of the core being composed by a flow modifier constituted by silica in an amount of 3% by weight of the core and by a binder acting as a moisture barrier constituted by magnesium stearate in an amount of 7% by weight of the core; the core represents 45.50% by weight of the final particle; the whole protective coating represents 54.50% by weight of the final particle; the inner, continuous layer is composed solely by hydrogenated palm oil as hydrophobic substance; the outer, continuous layer is composed by carnauba wax in an amount of 90% by weight of the outer layer and by soybean oil as a rigidity controlling agent in an amount of 10% by weight of the outer layer; the inner layer represents 70% by weight of the protective coating and the 38.15% of the final particle; the outer layer represents 30% by weight of the protective coating, and 16.35% by weight of the final particle; the final particle in the composition of matter having a particle size ranging from 300 micrometers to 1200 micrometers.

44. (Original) A composition of matter as claimed in claim 42, wherein: the core contains 85% by its weight of dry crystalline choline chloride in the form of micronized crystals, the remaining 15% by weight of the core being composed by a flow modifier comprising perlite and silica, respectively in an amount of 3% and 5% by weight of the core, and by a binder acting as a moisture barrier constituted by calcium stearate in an amount of 7% by weight of the core; the core represents 47.2% by weight of the final particle; the whole protective coating represents 52.8% by weight of the final particle; the inner, continuous layer is composed solely by hydrogenated soybean oil as hydrophobic substance; the outer, continuous layer is composed by carnauba wax in an amount of 90% by weight of the outer layer and by palm oil as a rigidity controlling agent in an amount of 10% by weight of the outer layer; the inner layer represents 55% by weight of the protective coating and the 29.0% of the final particle; the outer layer represents 45% by weight of the protective coating, and 23.8% by weight of the final particle; the final particles in the composition of matter having a particle size ranging from 400 micrometers to 1200 micrometers.

45. (Original) A composition of matter as claimed in claim 42, wherein: the core contains 85% by its weight of dry crystalline choline chloride in the form of micronized crystals, the remaining 15% by weight of the core being composed by a flow modifier comprising perlite and silica, respectively in an amount of 3% and 5% by weight of the core, and by a binder acting as a moisture barrier consisting of calcium stearate in an amount of

7% by weight of the core; the core represents 47.75% by weight of the final particle; The whole protective coating represents 52.25% by weight of the final particle; the inner, continuous layer is composed solely by hydrogenated soybean oil as hydrophobic substance; the outer, continuous layer is composed by carnauba wax in an amount of 95% by weight of the outer layer and by palm oil in an amount of 5% by weight of the outer layer; the inner layer represents 50% by weight of the protective coating and the 26.125% of the final particle; the outer layer represents 50% by weight of the protective coating, and 26.125% by weight of the final particle; the final particles in the composition of matter having a particle size ranging from 400 micrometers to 1200 micrometers.

46. (Original) A composition of matter as claimed in claim 1, wherein the outer continuous layer constitutes a percentage by weight of the protective coating which ranges from 30% to 60%.

47. (Original) A composition of matter as claimed in claim 1, wherein the outer continuous layer constitutes a percentage by weight of the protective coating which ranges from 45% to 55%.

48. (Original) A composition of matter as claimed in claim 1, wherein the inner, continuous layer constitutes a percentage by weight of the protective coating which ranges from 40% to 70%.

49. (Original) A composition of matter as claimed in claim 1, wherein the inner continuous layer constitutes a percentage by weight of the protective coating which ranges from 45% to 55%.

50-51. (Cancelled)

52. (Currently amended) A composition of matter as claimed in claim 50-1 wherein the one or more lipids are selected from the group consisting of palm oil and soybean oil.

53-54. (Cancelled)

55. (Original) A composition of matter as claimed in claim 1, wherein the protective coating constitutes a percentage by weight of the whole particle which ranges from 30% to 70%.

56. (Original) A composition of matter as claimed in claim 1, wherein the protective coating constitutes a percentage by weight of the whole particle which ranges from 50% to 60%.

57. (Original) A feed pellet containing a composition of matter as claimed in anyone of the previous claims from 1 to 56.

58. (Original) A premix for feed containing a composition of matter as claimed in anyone of the claims from 1 to 56.

59. (Original) Mash feed in unpelletted form, containing a composition of matter as claimed in anyone of the claims from 1 to 56.